



Health & Safety Newsletter

Recognition, Evaluation & Control

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There are some special health and safety hazards associated with the winter months. The focus of this newsletter is some of these hazards and ways to prevent losses associated with cold temperatures and winter weather conditions.

Winter Slip/Fall Safety

Slips and falls account for thousands of serious injuries and deaths each year. The colder winter months create additional hazards because of snow and ice. Employers need to be prepared for these conditions and have a plan for preventing slips and falls before these hazards exist.

The first step to prevent winter slips and falls is to create a fall prevention program. The plan should include:

- Defined roles and responsibilities
- Communications
- Employee training



The fall prevention program should include plans and standards for clearing parking lots, sidewalks, walkways and entranceways of buildings. If outside vendors are hired to clear ice and snow, formal contracts should be signed and certificates of insurance should be obtained. It is also advisable that the company be named as an additional insured on the vendor's insurance policies. It is important to have defined expectations of when areas will be cleared of snow and ice and how frequently they will be cleared. Weather conditions should be monitored and the vendor contacted as necessary if more frequent snow and ice clearing are needed.

The winter fall protection program should identify especially hazardous areas. These include ramps, stairs and pathways that may be especially icy. Provide good lighting in these areas and provide more frequent clearance of ice and snow. Inspect parking lots and walkways frequently and keep a shovel and ice melt in building entrance ways for

emergency use. Make special arrangements for snow and ice removal on the north sides of buildings. Often, as temperatures begin to rise, the sun will keep other sides of buildings clear while the north side or shaded areas around buildings will remain icy. Truck drivers and delivery personnel may run into slippery walkways on their routes. Make sure these employees have proper winter footwear. They should also carry a supply of ice melt in their vehicles so they can use it on slippery surfaces they may encounter.

Employee training and work practices are also an important part of slip and fall prevention.

Employees should:

- Wear appropriate footwear
- Avoid carrying loads
- Keep both hands free for proper balance
- Take small steps and walk slowly
- Do not run
- Use handrails
- Avoid using shortcuts

Employees should note icy and slippery areas and promptly report these areas to management.

Entrance ways of buildings pose a high risk for slips and falls. This is especially important for retail stores, restaurants and other public buildings with a high amount of foot traffic. These areas become wet and slippery from snow, ice and mud carried on footwear. Non-slip absorbent mats should be placed in these areas and the mats should be changed regularly and the floors in

these areas should be mopped and cleaned frequently. Slip resistant floor treatments can be applied to these areas to help increase traction.

Carbon Monoxide Poisoning

Carbon monoxide is known as the silent killer because it is a colorless, odorless, tasteless gas. Victims are unaware that they are being poisoned until it is too late. Carbon monoxide is formed by incomplete combustion of fuels. Winter poses an increased hazard from carbon monoxide poisoning because buildings are closed up more tightly and due to the use of heating equipment.

Carbon monoxide interferes with the transport of oxygen in the blood. Normally, hemoglobin in the bloodstream binds with oxygen and transports the oxygen to organs and tissue. When exposed to carbon monoxide, the hemoglobin preferentially combines with the carbon monoxide forming carboxyhemoglobin. Carboxyhemoglobin prevents oxygen from being carried to organs and tissue. Those particularly vulnerable to carbon monoxide include the pregnant women, infants, and persons with anemia or a history of heart disease.

Carbon monoxide is a by-product of the incomplete burning of carbon containing fuels such as: gasoline, natural gas, oil, kerosene, coal, and wood. This incomplete burning is usually the result of a lack of sufficient fresh air for the combustion process. Sources include exhaust from cars and trucks and other gasoline engines. Propane powered fork trucks are a common source of carbon monoxide in warehouse and manufacturing facilities. On construction sites, equipment such as portable generators, concrete finishers, and other equipment

powered by small gasoline engines can produce very high levels of carbon monoxide especially in poorly ventilated areas. Space heaters are another cause of carbon monoxide poisonings.



The possibility of carbon monoxide poisoning should be investigated if there are any complaints of symptoms such as headache, dizziness, and nausea. If carbon monoxide poisoning is suspected, evacuate the area immediately and go outside for fresh air. The effects of initial stage carbon monoxide poisoning are quickly reversible upon exposure to fresh air. If symptoms persist, see a physician or get to an emergency room immediately. Tell the physician you suspect carbon monoxide poisoning. If carbon monoxide poisoning has occurred, it can often be diagnosed by a blood test completed soon after exposure. Contact an ambulance if victims are unconscious or show evidence of severe poisoning. Contact the utilities or other emergency professionals to address the cause of the exposure and to prevent reoccurrence.

To prevent carbon monoxide poisoning:

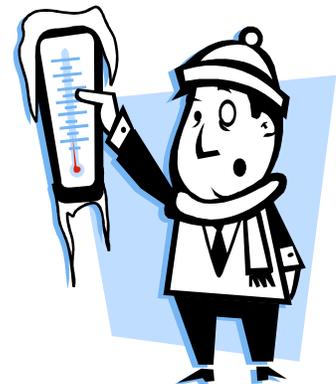
- Never use a generator inside an enclosed structure.
- Properly install, maintain, and operate all fuel-burning appliances.
- Have heating systems and chimneys annually inspected by a licensed contractor to ensure they are in safe working order.
- Inspect and tune vehicle exhaust systems annually.
- Never use a charcoal grill, hibachi, gas-fueled lantern or portable camping stove inside an enclosed area.

- Use electric or pneumatic powered tools instead of gasoline powered equipment in enclosed areas.

If a gas powered tool or equipment must be used in a partially enclosed area such as a construction site, fans or mechanical ventilation systems should be used to supply fresh air to the area. Install carbon monoxide alarms on systems supplying breathing air for respirators. Ensure that the alarms are inspected and working properly. Install an Underwriters Laboratory Listed carbon monoxide detector and replace batteries semi-annually. Never leave the motor running of a vehicle parked in an enclosed or semi-enclosed area.

Cold Stress

Working in cold environments poses a risk for frostbite, hypothermia and cold stress. Many workers in construction, agriculture, forest industries, utilities and anyone working outdoors have a risk of these conditions and should be aware of symptoms of cold stress and means of preventing them.



Employees working outdoors during cold weather cannot avoid cold temperatures. As temperatures cool, the body loses heat to the surroundings. The greater the difference between body temperature and the surrounding air, the faster the heat loss. Cold temperatures combined with cold

wet objects or wind, greatly increase heat loss. The body can lose heat 25 to 30 times faster when in contact with cold wet clothing than when clothing is dry. As the body cools, heat balance is maintained by reducing blood flow to the skin and extremities and by shivering.

Susceptibility to cold stress varies by individual and those more susceptible include:

- Elderly
- Persons with circulatory diseases
- Previous cold injury
- Fatigue
- Consumptions of alcohol and nicotine
- Use of certain drugs and medications

The reduced blood flow and cooling of the extremities decreases dexterity and may lead to frost nip or frostbite. Frost nip is the mildest form of cold injury. It occurs when ear lobes, nose and exposed skin turns white. It can be treated by warming the area. Frostbite occurs when tissue temperature falls below the freezing point. Blood vessels are damaged and blood circulations stops in the affected tissue. If the body's core temperature falls below 95° F, a condition known as hypothermia develops. This condition is caused when the body cannot produce heat faster than it is lost and can occur at temperatures up to 65°F.

Hypothermia occurs rapidly in cold water and usually develops when wind or wet clothing reduce the insulating properties of clothing. Initially, hypothermia causes pain but as the condition progresses pain and sensation diminishes and serious injury can result without the victim noticing. Next, there is muscle weakness and drowsiness and when the core temperature drops to 80.6° F, the body goes into a coma.

The use of engineering controls to reduce the potential risk from cold environments can sometimes be used to prevent cold stress. These controls include:

- Placing wind screens around work areas.
- Use of electric heaters
- If fuel powered heaters are used, make sure there is adequate ventilation and controls to prevent accumulation of carbon monoxide.

Work organization is another important means of control. Newly hired workers should be acclimated to cold temperatures over the first few days of work. Workers should never work alone in the cold. Employees should take more frequent breaks and break areas should be heated. Hot drinks should be provided and outer layers of clothing should be removed to facilitate warming of the body.

Workers should be trained in re-warming methods, signs and symptoms of cold stress and first aid procedures. Workers experiencing frost bite or hypothermia should have immediate medical treatment.

Proper clothing is the primary means of controlling cold stress in most situations. Clothing should be worn in layers. Layered clothing provides more pockets of air and better insulation than a single clothing layer. Layered clothing can also be added or removed as conditions warrant allowing greater flexibility to temperature changes. If conditions are wet, the outer layer should be waterproof. Clothing should also be kept dry and if it becomes wet, it should be removed and replaced. Clothing should also be kept clean. Dirt fills air cells and destroys insulating properties. Almost 50% of the body's heat loss is through the head. A wool hat or liner under a hard hat should be worn to reduce excessive heat loss. Gloves should be worn when temperatures fall below 40° F. When temperatures fall below 19° F, mittens should be worn.